

Message

From: Ron Chinn [ron.chinn@innovex.net]
Sent: 11/15/2017 1:04:21 AM
To: Linder, Steven [Linder.Steven@epa.gov]
CC: Pallarino, Bob [Pallarino.Bob@epa.gov]; TU, LYNDSEY [Tu.Lyndsey@epa.gov]; steven.chang@doh.hawaii.gov
Subject: Re: RHMW11 Well Design

Hi Steve –

Thanks for forwarding Patrick's e-mail. As requested, I've taken a look at his concerns and brought them up directly with AECOM. Below are my responses to Patrick's concerns:

1. Was a video log conducted and reviewed, to determine and verify the optimal intervals for packer placement as discussed at earlier meetings? At least one packer placement on the proposed RHMW11 installation log shows a packer placed partially across a clinker zone (417.25' - 422.25'). What was the criteria used for packer and sample port locations?

AECOM performed the video log as originally proposed, and they also collected a substantial amount of geophysical data during borehole advancement to corroborate their lithologic findings. It's important to note that in addition to this, AECOM continuously cored the borehole. I haven't had the opportunity to review the actual core, but based on the information they were able to show to me today, I believe that they have the lithologic resolution necessary to properly place the packers.

Patrick notes that one of the packers was shown across a clinker zone (417.25' – 422.25'). He is correct, and AECOM has decided to move this packer downward by about 3 feet (i.e. 420.25' – 425.25') to avoid the clinker zone. Others may be slightly adjusted based on professional judgement as necessary to ensure that the packers are placed in representative units that are likely to provide a good seal.

2. The Westbay system does not provide for the ability to directly measure depth to ground water; data that will be used in ground water modeling, and in GW flow direction/velocity calculations. Pressure transducers are an indirect method, and any significant LNAPLs present will introduce errors in water depth pressures.

I had expressed this exact concern to AECOM/GSI when I had first heard that they were planning on using the Westbay system. After raising the issue with Curt Stanley, he indicated that the system they will be using allows the pumping port to be pulled open. This allows AECOM to directly measure the water surface elevation using a standard water level indicator tape. AECOM told me today that they also intend to use high-resolution pressure transducers to measure depth to water. I told them that this is fine, as long as the sensor can be calibrated using a tape. (FYI – in a previous conversation, I agreed that using lower-resolution pressure transducers at depth is fine since they're only looking at vertical gradients deeper in the aquifer. The data quality requirement at depth is far lower than the actual water surface elevation, which, as Patrick points out, is critical for modeling purposes.)

Regarding the potential of LNAPL to introduce errors in the water level measurements using pressure transducers, I have to admit that this isn't something I'm particularly concerned about. First of all, AECOM did not observe any evidence of LNAPL during borehole advancement – let alone LNAPL of sufficient thickness to materially throw off depth to water measurements. Second, AECOM is bracketing the potentiometric surface with two Westbay packers placed just 5 feet above and 5 feet below the anticipated water level. This pretty much ensures that if there's substantial product out there, they'll see it

3. We note that the Westbay system is not designed to allow for the detection, measurement, or sampling of LNAPLs.

This is correct – the Westbay system isn't ideal for measuring LNAPL. It's important to note, though, that this doesn't mean that the Westbay system would allow LNAPL to go entirely undetected. In the presence of LNAPL, it would be

expected that extremely high concentrations of dissolved constituents would be present at or near the solubility limit – and Westbay excels at finding dissolved contaminants. I believe that if AECOM finds concentrations even close to the solubility limit at RHMW11, it would represent a changed condition, ultimately resulting in much more investigation. For the purposes of this investigation, I think that the Westbay system is adequate...but I reserve the right to change my mind if very high dissolved concentrations are found near the potentiometric surface. We'll cross that bridge when we get there.

4. We note that the Westbay system draws water into an evacuated sample chamber (under negative pressure). The HDOH Technical Guidance Manual, Sect 6.5, GW sampling, indicates that negative pressure sampling methods are not recommended for the collection of VOC samples.

Technically, I agree that collecting samples using a vacuum isn't ideal, but from a practical standpoint, I don't believe it to be a material issue for this site. If I recall correctly, the concern about negative pressure during sample collection primarily revolved around using a peristaltic pump. The theory is that under high vacuum conditions, volatilization of VOCs (especially lighter end VOCs) could be induced, resulting in groundwater concentrations that were biased low. In this case, I don't believe it to be much of a problem because 1) the Westbay sample collection is a closed system – in other words, there's nowhere for the volatiles to go, except back into solution. This may not be 100% correct, but it's definitely better than a peristaltic pump which allows for many opportunities for volatiles to escape during sample collection, and 2) we're talking about primarily heavy-end hydrocarbons. Heavy end hydrocarbons like JP-8 are pretty darn stable – I honestly don't think that even sampling by peristaltic pump would make a material difference.

Based on the information I received from AECOM and some of my own experience, I really don't have much of a concern about the Westbay system. Bear in mind that there is no "perfect" system for sample collection – one could easily argue that every sampling system out there has some type of limitation. In this case, especially for the type of data that AECOM is attempting to collect, I think that the Westbay system is perfectly adequate. If concentrations start coming back at or near the solubility limit, I believe we should rethink the situation. But until that time, I see no concern with the Westbay system.

Thanks,
--Ron

Ron Chinn, PE, PMP, CHMM
President & CEO

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From: "Linder, Steven" <Linder.Steven@epa.gov>
Date: Tuesday, November 14, 2017 at 12:06 PM
To: Ron Chinn <ron.chinn@innovex.net>
Subject: Fwd: RHMW11 Well Design

Steven C. Linder, P.E.
Manager, Underground Storage Tank Program
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Sent from my government iPhone

Begin forwarded message:

From: "Casey, Patrick N" <patrick.n.casey@hawaii.gov>
Date: November 14, 2017 at 9:05:33 AM HST
To: "Saguibo, Tracy-Joy I CIV NAVFAC HI, OPHE3" <tracyjoy.saguibo@navy.mil>
Cc: "Imata, Ryan R" <ryan.r.imata@hawaii.gov>, "Poentis, Aaron Y CIV NAVFAC HI, EV" <aaron.poentis@navy.mil>, "Hardy, Roy" <roy.hardy@hawaii.gov>, "Chenet, Robert F" <Robert.F.Chenet@hawaii.gov>, "Fukumoto, Janice L CIV NAVFAC HI, EV3" <janice.fukumoto@navy.mil>, "Waki, Cory K CIV NAVFAC HI, EV1" <cory.waki@navy.mil>, "Johnson, Jeff" <JEFF.JOHNSON@aecom.com>, "Kronen, John" <john.kronen@aecom.com>, "Nancy Matsumoto" <Nmatsumoto@hbws.org>, "Whittier, Robert" <Robert.Whittier@doh.hawaii.gov>, "Kwan, Roxanne S" <roxanne.kwan@doh.hawaii.gov>, "Takaba, Richard R" <richard.takaba@doh.hawaii.gov>, BARRY USAGAWA <BUSAGAWA@hbws.org>, "Chang, Steven Y" <steven.chang@doh.hawaii.gov>, ERWIN KAWATA <EKAWATA@hbws.org>, "Linder, Steven" <Linder.Steven@epa.gov>, "Pearson, Jeffrey T" <jeff.pearson@hawaii.gov>, Stephen Anthony <santhony@usgs.gov>, "dsoki@usgs.gov" <dsoki@usgs.gov>
Subject: RE: RHMW11 Well Design

Aloha Tracy,

Thank you for providing the details of RHMW11, and your proposed Westbay system installation details. Our involvement with the ongoing studies and activities at Red Hill stems from our mandate to protect the public trust resource: the ground water within the aquifer beneath Red Hill.

While we appreciate being kept in the information loop as these studies move forward, the EPA and HDOH should provide guidance and input regarding this well's final design details. That said, the CWRM has several concerns and comments regarding the proposed Westbay sampling system. Given that the principal concern at this facility is the potential for released fuel from the tanks to migrate into the ground water, from our perspective, monitoring wells should be designed to allow direct measurement of depth to ground water, and also to detect, measure, and sample released fuels.

Specific concerns and comments related to installing the proposed Westbay sampling system in RHMW11, and in other proposed MWs near Red Hill, include the following:

1. Was a video log conducted and reviewed, to determine and verify the optimal intervals for packer placement as discussed at earlier meetings? At least one packer placement on the proposed RHMW11 installation log shows a packer placed partially across a clinker zone (417.25' - 422.25'). What was the criteria used for packer and sample port locations?
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transducers are an indirect method, and any significant LNAPLs present will introduce errors in water depth pressures.

3. We note that the Westbay system is not designed to allow for the detection, measurement, or sampling of LNAPLs.

4. We note that the Westbay system draws water into an evacuated sample chamber (under negative pressure). The HDOH Technical Guidance Manual, Sect 6.5, GW sampling, indicates that negative pressure sampling methods are not recommended for the collection of VOC samples.

We look forward to CWRM's continuing involvement in the ongoing investigation of the Red Hill Tank Farm.

Respectfully,

Patrick Casey

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-----Original Message-----

From: Saguibo, Tracy-Joy I CIV NAVFAC HI, OPHE3 [mailto:tracyjoy.saguibo@navy.mil]
Sent: Monday, November 13, 2017 7:56 AM
To: Casey, Patrick N <patrick.n.casey@hawaii.gov>; Chenet, Robert F <Robert.F.Chenet@hawaii.gov>
Cc: Imata, Ryan R <ryan.r.imata@hawaii.gov>; Poentis, Aaron Y CIV NAVFAC HI, EV <aaron.poentis@navy.mil>; Fukumoto, Janice L CIV NAVFAC HI, EV3 <janice.fukumoto@navy.mil>; Waki, Cory K CIV NAVFAC HI, EV1 <cory.waki@navy.mil>; Johnson, Jeff <JEFF.JOHNSON@aecom.com>; Kronen, John <john.kronen@aecom.com>
Subject: RHMW11 Well Design and Geophysical Results
Importance: High

Patrick, Bob,

Please see attached for the well design for RHMW11 along with the geophysical results. Sampling intervals and rationale for interval selection are contained on page 5 of the first attachment.

If you would like our technical team to discuss/explain the attached well design, we would like to do so today before 1400. Please let us know as soon as possible. Any changes to the attached well design need to be made by 1400 today to avoid delays in beginning well installation tomorrow, November 14.

We are estimating 3-4 days for well installation. If well installation begins tomorrow, we anticipate completion by Thursday, November 16, with Friday, November 17, as a contingent day.

Thank you!

V/R,

Tracy Saguibo

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